

# ARCHIVED REPORT

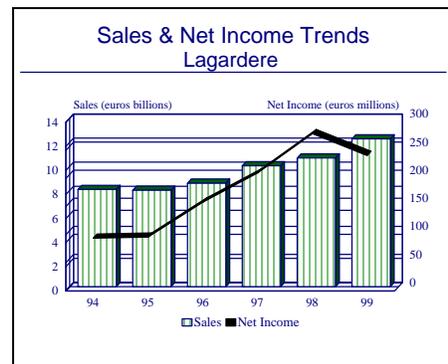
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## Lagardère - Archived 4/2002

### Outlook

- The formation of the European Aeronautics, Defence and Space (EADS) company marked a decisive turning point in Lagardère's history
- Since Lagardère now owns only a minority share as part of a French pooling company in EADS, this report will no longer be individually updated



### Headquarters

Lagardère  
121, avenue de Malakoff,  
75216 Paris Cedex 16 - France  
Telephone: (33 1) 40 69 16 00  
Web site: <http://www.lagardere.com>

Lagardère is built upon two key industries, high technology and media, which are represented by the brand names Matra and Hachette, respectively.

Matra SA, the defense-oriented arm of Lagardère, was founded in France in 1945, following the end of World War II. Initially, the company was involved in airborne weapons systems, but over the years, it became a highly diversified high-technology company. In addition to defense systems, its products included space systems, telecommunications equipment, automobiles, and transportation systems.

On December 29, 1992, Matra SA merged with the diversified French publishing firm Hachette SA. With this merger and the establishment of Matra Hachette, the company became a diversified firm conducting business in diverse areas such as space, defense, automobiles, telecommunication CAD/CAM, transit systems, book publishing, print media, distribution services, and broadcasting and film display.

In early 1994 Matra Hachette became a part of Lagardère Groupe SA, whose namesake, Jean-Luc

Lagardère, is the chairman, president and chief executive of the company.

In June 1999, as part of a privatization plan, the state-owned Aerospatiale was merged with the Lagardère Group's Matra High Technology unit into a new entity, Aerospatiale-Matra. The resulting company was 48 percent owned by the French State (directly and indirectly); the Lagardère Group held 33 percent and the remaining 19 percent of the capital was floated publicly (17 percent on the Paris Stock Exchange and 2 percent reserved for the workforce).

In October 1999, DaimlerChrysler, Lagardère and the French State agreed to merge the respective aerospace and defense activities into a new company, the European Aeronautic, Defence and Space Company (EADS). The public offering of EADS was completed in July 2000.

Following the successful offering, Lagardère has emerged as a focused media group with a core participating interest in EADS and a wholly owned automotive business.

As of early 2000, Lagardère employed an estimated 49,100 personnel of which 17,300 worked at Aerospatiale Matra. The company's auditors are Barbier Frinault et Autres, a member firm of Arthur Andersen Worldwide Organization.

## Structure and Personnel

### Officers and Management

Jean-Luc Lagardère  
General Partner and Chief Executive Officer

Philippe Camus  
General Partner and Co-Chief Executive Officer

Arnaud Lagardère  
General Partner and Co-Chief Executive Officer

Frédéric d'Allest  
Telecommunications Services

Jean-Louis Gergorin  
Strategic Coordination, High Technology Sector

Jean-Paul Gut  
International Operations, High Technology Sector

Gérald De Roquemaurel  
Media Division Chairman and CEO Hachette  
Filipacchi Médias

Thierry Funck-Brentano  
Executive Vice President, Communication and  
Human Resources

Pierre Leroy  
General Counsel and Secretary

Dominique D'Hinnin  
Senior Vice President and Chief Financial Officer

## Product Area

Lagardère manages its major businesses as follows:

1. Lagardère Media
  - 1.1 Digital Media
  - 1.2 Books
  - 1.3 Magazines
  - 1.4 Distribution Services

2. EADS
3. Matra
  - 3.1 Automobile

## Facilities

The group's major aerospace and defense operations (now under EADS):

Matra BAe Dynamics, 20-22 Rue Grange Dame Rose, F-78140 Vélizy, France.

Matra BAe Dynamics 11, Strand - London WC2N 5HR, Great Britain.

Matra Datavision, 31, avenue de la Baltique, Parc d'Activité de Courtaboeuf, 91954 Les Ulis Cedex France. Web site: <http://www.matra-datavision.com>

Matra Défense Equipements & Systèmes 2, 6, avenue des Tropiques - B.P. 80, Z.A. Courtaboeuf 91943 Les Ulis Cedex, France.

Matra Marconi Space, 37, avenue Louis Breguet - B.P. 1, 78146 Vélizy-Villacoublay Cedex, France. Web site: <http://www.matra-marconi-space.com>

Matra Systèmes & Information, 6, rue Dewoitine - B.P. 14, 78142 Vélizy-Villacoublay Cedex, France.

## Corporate Overview

With the formation of EADS, Lagardère's interest in the defense industry is now more akin to a major shareholder.

### New Products and Services

Please refer to the EADS report.

### Plant Expansion/Organization Update

French Consolidation Accord. In December 1998, the French government reached an agreement with

Aerospatiale, Alcatel, Lagardère and Thomson-CSF regarding respective competencies and relationships between Thomson-CSF and Alcatel on the one hand and the future Aerospatiale – Matra Hautes Technologies company – on the other. The details of the plan are as follows:

In avionics, Thomson-CSF will become the 100 percent owner of Sextant Avionique. In addition, Aerospatiale and Sextant Avionique will plan a new division for their avionics activities which will be concentrated within

Sextant Avionique in Toulouse, with the exception of those activities that Aerospatiale and its partners must directly control in order to design the Airbus family of aircraft.

In missiles, Aerospatiale and Thomson-CSF, the two companies that are partners in the EUROSAM consortium with Alenia, have confirmed their commitments to developing and marketing systems and equipment belonging to the medium-range Future Surface Air Family (FSAF). In signing this agreement, with a lifetime of 10 years, the two partners have confirmed that they, along with their partner Alenia, wish to attack this market through the EUROSAM structure exclusively. This structure's responsibilities cover global defense proposals for the French, European and export markets, including medium-range surface-to-air systems with component subsystems drawn from the FSAF programs.

In satellites, Alcatel, Alcatel Space and Thomson-CSF renounce the right to invoke the clause of non-re-establishment in the field of satellite activities against the future Aerospatiale-Matra Hautes Technologies company, in respect of Lagardère's contribution of the Matra Hautes Technologies shares.

Alcatel and Thomson-CSF expressed their satisfaction that the French government is confirming the pre-eminent role played by Alcatel Space in the field of military space systems (telecommunications, optical observation and radar). Alcatel Space is thus reinforcing its position in the space systems field and promoting synergies between its civilian and military activities.

### **Mergers/Acquisitions/Divestitures**

EADS Formed. In October 1999, DaimlerChrysler, the French Lagardère Group and the French State agreed to merge the respective aerospace and defense activities into a new company which will be the world's third largest aerospace company. The new corporation, to be called European Aeronautic, Defence and Space Company (EADS), will be created through the combination of Aerospatiale Matra SA and DaimlerChrysler Aerospace AG (DASA) and will be Europe's largest aerospace company. In December 1999, the Spanish aerospace company CASA joined EADS as a founding member (Note: Spain's state holding company SEPI [Sociedad Estatal de Participaciones Industriales] currently holds the majority stake in CASA).

DASA CEO Dr. Manfred Bischoff and Lagardère chairman Jean-Luc Lagardère head the board of EADS.

The operative business is headed by two CEOs: Phillipe Camus of France and Rainer Hertrich of Germany. EADS has dual headquarters in Munich and Paris and is registered in the Netherlands.

As would be expected, EADS' ownership breakdown forms a complex structure that is designed to assuage the concerns of DASA over French state ownership and of the French government and union officials over workforce security. The primary shareholder of EADS will be the Dutch Holding Partnership with a 65.57 percent stake. This partnership is composed as follows:

1. French pooling company (45.75 percent) - This is composed of the French government (50 percent), Lagardère (37 percent), and private institutions (13 percent).
2. DaimlerChrysler (45.75 percent).
3. SEPI (8.5 percent).

The remaining 34.43 percent of EADS has been floated as a Dutch company on stock exchanges. The public offering of EADS was completed in July 2000.

Aerospatiale Matra Formed. On June 11, 1999, Aerospatiale and Matra merged into a new entity, Aerospatiale Matra.

In forging the new company, Lagardère contributed 100 percent of Matra Hautes Technologies, the company which contains all of the defense and space activities of Lagardère (including its 50 percent stake of Matra BAe Dynamics, 100 percent of Matra Systèmes & Information, 100 percent of Matra Defence Equipements et Systèmes, and 51 percent of Matra Marconi Space) together with 50 percent of Matra Nortel Communications.

As part of the deal Lagardère will receive 33 percent of Aerospatiale's share capital in exchange for the transfer of Matra Hautes Technologies to Aerospatiale and a payment of FRF850 million to the French government. Lagardère could be required to make further payments to the French government, up to a maximum of FRF 1.15 billion, depending on the performance of Aerospatiale Matra shares on the Paris stock exchange.

According to the deal, if the stock falls 8 percent below the CAC 40 stock index two years after the offering, Lagardère will pay the whole FRF1.15 billion. If the shares remain equal with the index, the company will have to pay a little more than half (about FRF600 million). But if the share price does well and rises 10 percent above the CAC 40, Lagardère will pay nothing. The plan's incentive is aimed at ensuring that Lagardère seeks maximum value for its shareholders.

Holding 33 percent, Lagardère is the largest stockholder in Aerospatiale Matra. Coupled with the public flotation of 20 percent of the stock (17 on the Paris Bourse and 3 percent set aside for staff), the state's holding in Aerospatiale Matra has been reduced to about 47 percent, effectively privatizing the company. The government has stated that this stake will be reduced even more in the coming years. However, the government will retain a "golden share" or veto authority in the company to ensure that France's national security interests are protected.

Stake in Matra Transport Reduced. In October 1998, Lagardère sold its stake in Matra Transport International to partner, Siemens. Siemens now controls 95 percent of the issued share capital. The Lagardère group, which remains a shareholder with 5 percent of the capital, will use the funds to assist in its merger with Aerospatiale.

France to Privatize Aerospatiale Through Merger with Lagardère. France said in July 1998 that it would privatize its Aerospatiale aerospace group through a merger with the Lagardère conglomerate.

Lagardère will inject assets, including missiles, satellites and information systems, and cash, reducing the state's holding to slightly below 50 percent and effectively privatizing Aerospatiale. According to Aerospatiale and Lagardère, the enlarged Aerospatiale will have annual revenue of FRF80 billion and will be quoted on the stock market.

The merger "would allow progress toward the construction of a European (defense) industry by introducing a privileged strategic partnership with the Lagardère group," stated the office of France's prime minister, Lionel Jospin.

Aerospatiale had risked being left out of any cross-border alliance with Britain and Germany, which were both frustrated by the French government's reluctance to privatize the state-controlled aerospace giant. The Germans have always maintained they would join Aerospatiale if the French were to privatize it.

The merger will make Lagardère the biggest single shareholder of the new Aerospatiale, with between 30 percent and 33 percent, although the government will hold a single "golden share," as mentioned above, to defend national security interests. Analysts said the Lagardère choice was a surprise, as the two companies have been direct competitors in missiles and satellites, with Lagardère a long-standing observer of Aerospatiale's activities.

To compete with US giants, the state had asked Aerospatiale chairman Yves Michot to make proposals for opening Aerospatiale's capital and to forge strategic alliances ahead of a European industry consolidation.

France, Britain and Germany were among six European governments which said in a joint statement on July 10, 1998, that they wanted a single, private aerospace and defense company to be formed out of the fragmented European industry. The statement said the alliance also aimed at "a strategic European accord for combat aircraft in liaison with Dassault Aviation."

The two French companies said they would pursue efforts to transform the four-nation Airbus Industrie civil aircraft consortium into a single corporate entity. The French government said the new Aerospatiale would pay special attention to the interests of French defense electronics company Thomson-CSF, which was recently privatized by bringing in Alcatel, Dassault Industrie and Aerospatiale as stockholders.

As part of the merger, Lagardère will inject its 50 percent share in the Matra BAe Dynamics missiles joint venture, all of its Matra Systems and Information sector, Matra Defense Equipment and Systems, 51 percent of Matra Marconi Space, and 50 percent of Matra Nortel Communications.

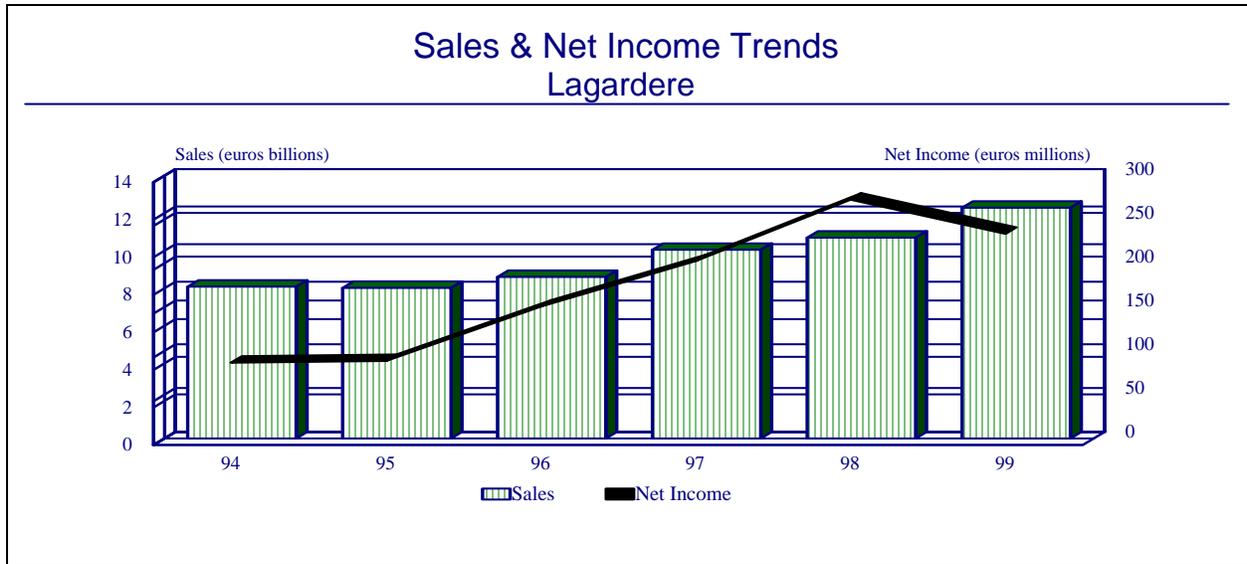
### Teaming/Competition/Joint Ventures

Please refer to Forecast International's "EADS" report.

## **Financial Results/Corporate Statistics**

Lagardère's 1999 sales rose to EUR12.3 billion, up from EUR10.7 billion in 1998. The company posted net income of EUR241 million in 1999, down from EUR280 million for 1998. US dollar figure, in millions, translated as a 1999 average at the rate of US\$1 = FRF.9386.

Y/E December 31	1995	1996	1997	1998	1999	1999
(euros millions)						US\$
Net Sales	8016	8598	10047	10692	12284	13087
Net Income	96	158	210	280	241	257



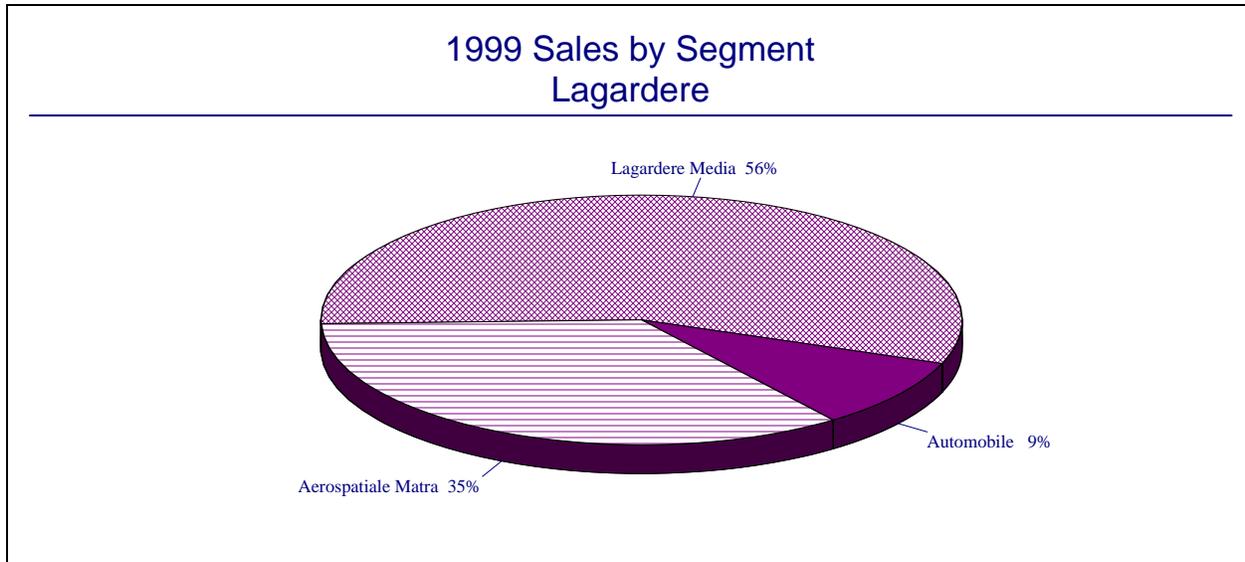
#### Industry Segments

A breakdown of Lagardère’s sales by major market segment for the past five years is given below. Totals may not add due to rounding. Aerospatiale Matra included at 33 percent (Lagardère’s stake). Figures for 1995-1998 include Matra Hautes Technologies at 100%.

<b>SALES</b>	<b>1995</b>	<b>1996</b>	<b>1997</b>	<b>1998</b>	<b>1999</b>
(euros millions)					
Lagardère Media	4683	5054	5750	6371	6884
Aerospatiale Matra	2454	2979	3156	3197	4257
Automobile	879	565	1141	1123	1143
<b>TOTAL</b>	<b>8016</b>	<b>8598</b>	<b>10047</b>	<b>10691</b>	<b>12284</b>

<b>OPERATING INCOME</b>	<b>1995</b>	<b>1996</b>	<b>1997</b>	<b>1998</b>	<b>1999</b>
(euros millions)					
Lagardère Media	187	207	238	244	292
Aerospatiale Matra	91	198	322	343	158
Automobile	65	8	63	77	70
<b>TOTAL</b>	<b>343</b>	<b>413</b>	<b>623</b>	<b>664</b>	<b>520</b>



## Strategic Outlook

The formation of the European Aeronautics, Defence and Space (EADS) company marked a decisive turning point in Lagardère's history and in the ongoing saga of European aerospace and defense consolidation.

Setting the stage for this transnational merger was France's decision to privatize Aerospatiale through its merger with Lagardère's Matra Hautes Technologies subsidiary. Further sweetening the pot, the French government transferred its stake in Dassault Aviation to Aerospatiale prior to the merger. The resulting firm, Aerospatiale Matra, united France's leading defense firms, providing access to almost every European program and product, including commercial and military aircraft, helicopters, launch vehicles and satellites, missiles, radar and surveillance systems, command and control networks, and avionics.

Ultimately, the formation of Aerospatiale Matra gave France a solid position with which to negotiate cross-border consolidation.

With its house in order the newly privatized Aerospatiale Matra turned to longtime defense partner DaimlerChrysler Aerospace, who at the time was negotiating with British Aerospace over a possible tie-up, and match was made. Spanish defense contractor CASA, who was about to be acquired by DASA, was instead offered a stake in the nascent company and thus the European Aeronautics, Defence and Space company was born.

Since Lagardère now owns only a minority share as part of a French pooling company in EADS, this report will no longer be individually updated.

## Prime Award Summary

Information is unavailable.

## Program Activity

**Business Interests.** Matra designs, develops and manufactures products under the following categories:

- Missile systems
- Space systems
- Airborne countermeasures and avionics
- Telecommunications and related systems
- Automobiles and transport systems
- Data systems
- CAD/CAM systems

*The following programs are now run by EADS. Please refer to that report for additional information.*

## Missile Programs

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### APACHE

The Arme Propulsée à Charge Éjecté (Container Weapon System), or APACHE, is a modular-type weapons system designed to attack a variety of stationary and moving targets, including armored ones, day or night at various stand-off ranges. It was developed by Matra with assistance from Aerospatiale.

The APACHE will form the basis for an entire family of modular standoff missile systems. The 1,200 kilogram missile will boast low vulnerability to detection by radar and infrared means, and the system will feature an extremely precise guidance system. Designed to dispense a variety of submunitions, the APACHE will feature broad capabilities based on this flexibility. Currently proposed submunitions for the APACHE include MAGRA, MIMOSA, SAMANTA, ACADIE and possibly the Terminally Guided Submunition being developed for the 227 mm Multiple Launch Rocket System, as well as the SADARM submunition.

Flight tests of unpowered APACHE models have been conducted. Production is currently under way, and development continues. First deliveries to the French Air Force were once thought to be planned for late 1998 or early 1999. Now, France is not expected to take delivery of the first APACHE-APs until 2001. The initial APACHE-AP version will be equipped with the SAMANTA anti-runway submunition.

### ARMAT

The ARMAT is essentially an improved MARTEL anti-radiation missile. Matra is the ARMAT program's prime contractor and is responsible for the missile's design and development. The ARMAT is a combat-proven system that has been used by Iraqi Mirage F1s and possibly by French aircraft during the Persian Gulf War. In eight reported engagements against Iranian MIM-23 HAWK radar sites, the Iraqi Air Force claimed seven definite kills. ARMAT has also been employed by Armée de l'Air Jaguars in Chad. The performance of the ARMAT is greatly enhanced over the AS.37 Martel; in fact, it is said to be equal to, and in some cases superior to, the AGM-88 HARM. A follow-on to the ARMAT, called Anti-Radar Futur (ARF), is under consideration for development, and could be available for service in the next several years.

### BGL

The laser-guided, 400 kilogram Matra BGL bomb, which saw extensive use in the Persian Gulf War, was instrumental in the rapid defeat of the Iraqi Armed Forces. Laser-guided "smart" munitions such as the BGL proved to be perhaps the most effective air-to-ground weapons in the conflict.

### CASOM

In July 1996, British Aerospace and partner Matra were awarded the hotly contested Conventionally Armed Stand-Off Missile (CASOM) program. The missile, dubbed Storm Shadow, is the first Anglo-French program of its kind and is valued at £800 million. The Storm Shadow/CASOM is expected to enter service in the UK Royal Air Force in 2001. The CASOM requirement could include the procurement of between 500 and 2,000 missiles. Reports say that the UK may order 900 missiles.

### MICA

The Missile d'Interception et de Combat Aerien (MICA) is a short-, medium-, and long-range air-to-air missile. The MICA is currently in full-scale production. The MICA-IR will be introduced after the active radar MICA-EM version. Initial delivery of the MICA-EM to the French Air Force was expected to commence in 1997, with the MICA-IR following after 2000. Now, the first 25 MICA-EMs were believed to have been delivered to France before the end of 1999. The first MICA-IRs will go to the United Arab Emirates, possibly this year (2001). Matra BAe Dynamics is rumored to be considering the development of a Super MICA, also known as MICA Mk 3, but so far no specifics are available.

### MILAS

The MILAS (MIssile de Lutte Anti-Sous-marine) is an ASW weapon that incorporates a missile as the launch vehicle, with a lightweight torpedo as the warhead. MILAS is a joint program of the French company Matra and the Italian company OTO Melara, in answer to requirements from both the French and Italian navies for an ASW missile for use aboard destroyers, frigates and corvettes. MILAS uses the OTOMAT missile as a booster, and the French Murene or the Italian A 290 lightweight torpedoes as the warhead. MILAS also is expected to be common with other lightweight torpedoes, including the A 244, Mk 46, Mk 50 and Sting Ray.

### Mistral (SATCP)

The Matra Mistral is a short-range anti-aircraft missile portable by two persons and operable by one. Mistral is similar in general configuration to Swedish Ordnance/Bofors Missile Group's RBS70. Mistral was formerly known as SATCP, the French acronym meaning short-range surface-to-air missile. Serial production commenced in 1987 and is ongoing.

### OTOMAT

The OTOMAT is a multipurpose, long-range, anti-ship missile. There are French and Italian OTOMAT versions of the Mk 1 and Mk 2 missiles. Matra and

OTO Melara, a world leader in naval guns and missile systems, privately entered into a joint venture in 1968 to produce a first-generation anti-ship missile. The missile was labeled OTOMAT, which is a combination of the first three letters of the Italian (OTO) and French (MAT) corporate titles. The OTOMAT Mk 1 became operational in 1976 with the Italian Navy, where the entire system is called Teseo. The OTOMAT Mk 2 is in production. The Matra-proposed OTOMAT Mk 3 could be available in the near future depending on when an initial order is placed.

#### **R.440/R.460/VT-1 (Crotale, Cactus, Shahine)**

The Matra R.440/R.460/VT-1 Crotale/Cactus/Shahine series of all-weather, short-range, surface-to-air missiles for land- and sea-based air defense systems are in serial production for at least 12 nations. Production of the VT-1 is under way. The Cactus, Crotale and Shahine systems can be mounted on stationary, wheeled or tracked chassis. The Naval Crotale launcher is deck-mounted aboard ship. Thomson-CSF retains overall system development responsibilities, while Matra produces the missiles. Discussions are under way with the French Air Force for the upgrade of its existing Crotale systems to Crotale NG standards.

#### **R.530/Super 530F/Super 530D**

The Matra R.530 series are all-weather, medium-range air-to-air missiles. Fabrication of the R.530, Super 530F and Super 530D is continuing, though it was thought to have been concluded. The Super 530F entered service with the French Air Force in December 1979 and was specifically designed for the Mirage F1s. However, the missile can be fitted to Mirage 2000s. The development of the Super 530D was completed in mid-1987. Full-scale production followed one year later. Initial deliveries were made to the French Air Force in mid-1988. Escadron de Chasse I/5, the first operational unit equipped with RDI-fitted Mirage 2000s and armed with the new missile, began working toward its initial operating capability in July 1988. This missile is designed with the Mirage 2000 specifically in mind.

#### **R.550 (Magic 1/Magic 2)**

Matra began development of the Magic series of short-range air-to-air missiles in 1968 as a private venture, aiming it specifically at the Mirage F1. The French government began funding the program in 1969. The series now includes two variants: the R.550 Magic 1 (original Magic air-to-air missile) and the R.550 Magic 2 (a greatly enhanced version of the R.550 missile that is 100 percent interchangeable with the Magic 1). The Magic is in production and is operational with at least 17 air forces around the world.

#### **Space Systems Programs**

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#### **Ariane 4 and 5**

The Ariane 4 is a medium-to-heavy-lift expendable launch vehicle. The Ariane 5 is a European heavy-lift expendable launch vehicle. Arianespace, Evry, France, is responsible for Ariane 4 and 5 production, marketing and operational launch services. Aerospatiale is the Ariane industrial architect. Matra Marconi Space is one of numerous additional contractors involved in the program.

#### **DBS-TV**

Direct Broadcast Satellite Television (DBS) systems allow TV signals to be broadcast directly from a satellite to a home receiver without the intermediary of a local TV station or cable system. Companies involved in DBS-TV satellite manufacturing include Lockheed Martin Astro Space, Princeton, NJ; Space Systems/Loral, Newport Beach, CA; Hughes Aircraft, El Segundo, CA; Orbital Science Corp's Germantown Operations, Germantown, MD; International Technologies, McLean, VA; Intraspace Corp, Salt Lake City, UT; Eurosatellite GmbH, Munich, Germany; and Matra Marconi Space, France. There are approximately 25 proposed or operational DBS-TV systems.

#### **DRS/Artemis**

The Data Relay Satellite (DRS) is a civilian communications satellite designed to provide high-capacity data relay services for European Space Agency (ESA) members. Artemis (Advanced Relay and Technology Mission Satellite) will carry experimental payloads to demonstrate new technologies and services. The laser optics are part of the Semiconductor Intersatellite Link Experiment (SILEX) being developed for Artemis by Matra Marconi Space. Artemis is scheduled for launch on a Japanese H-2A expendable launch vehicle in 2000. The DRS program is on hold.

#### **ESA Polar Platform**

The European Space Agency (ESA) Polar Platform program is developing a series of Earth resources satellites. Matra Marconi Space is the prime contractor for the Envisat-1 spacecraft, which will use the Polar Platform bus, and the advanced synthetic aperture radar (ASAR) design. The European Meteorological Satellite Organization (Eumetsat) is cooperating with ESA on the development of Metop spacecraft. Other contractors include Alenio Spazio (radar altimeter), Sira (analog processing unit for the medium-resolution imaging

spectrometer [MERIS]) and global ozone monitoring by occultation of stars (GOMOS), Aerospatiale (lead contractor for IASI infrared atmospheric sounding instrument and MERIS), Dornier (MERIS prime contractor), UK Rutherford Appleton Laboratory (advanced along-track scanning radiometer [AATSR] development), Logica (prime contractor for Envisat-1 ground segment), and Lockheed Sanders (high-capacity tape recorders). Envisat is scheduled for launch in June 2001, while Metop-1 will be deployed into low-Earth orbit in 2003.

### **Eurostar**

Eurostar is a medium-weight, high-output telecommunications platform produced by Satcom International. Satcom International is a joint company consisting of British Aerospace plc, Space & Communications Division, Stevenage, Herts, England, and Matra Marconi Space, Matra Space, Paris, France. Approximately 21 Eurostar satellites have been produced to date. The satellite remains in production.

### **Eutelsat**

Eutelsat is a European commercial communications satellite system. Alcatel Space is the prime contractor for the Eutelsat 2 satellite (Spacebus 2000 bus), Hot Bird 1 (Spacebus 2000) and W series (Spacebus 3000). Additional contractors include Alenia Aerospazio (Italy), CASA (Spain), Ericsson Radio Systems (Sweden), ETCA (Belgium), Matra Marconi Space, DaimlerChrysler Aerospace (Germany), and Crouzet (France). Matra Marconi Space was selected for Hot Birds 2/3/4/5 and Europesat 1B. NPO Prikladnoi Mekhaniki (NPO-PM) is developing the Sesat spacecraft, with Alcatel Space contributing the communications payload.

### **Fixed Satellite Services (FSS)**

Fixed Satellite Services (FSS) refers to satellite systems that would be designed to provide a wide range of telecommunications services. Matra Marconi Space is working on a system known as WEST. WEST is a Matra Marconi Space initiative to develop a satellite-based infrastructure to satisfy multimedia services. WEST would offer a broadband interactive communications network which would initially comprise geostationary Ka-band satellites covering Europe and adjacent regions. The WEST system would be complemented by a constellation of a limited number of Ka-band satellites in MEO to provide additional services and to extend the coverage.

### **Helios**

Helios is a military imaging reconnaissance satellite. The Helios 1 program is a cooperative venture between France (79 percent), Italy (14 percent) and Spain (7

percent), with Matra Marconi Space, Toulouse, France, in charge of the spacecraft and processing center. Companies working with Matra on the project include: SAT Control and Aerospatiale (France); Alenia and ISC Laben (Italy); and INTA, Sener, INISEL and Telefonica (Spain). Matra Marconi Space is also the Helios 2 prime contractor, with Aerospatiale supplying the spacecraft's optical instrument and DaimlerChrysler Aerospace (DASA) of Germany developing a night infrared sensor. The French Ministry of Defense procured two Helios 1 satellites, with the first launched on an Ariane 4 expendable launch vehicle in July 1995; the second unit is in storage. The first Helios 2 satellite is slated for launch in 2002.

### **Inmarsat**

The Inmarsat system is a constellation of telecommunications satellites. The Inmarsat satellite system provides phone, fax, telex, data, and compressed video to customers aboard ships, yachts, cruise vessels, oil-drilling rigs, commercial aircraft, automobiles and trucks. Inmarsat 2 was produced by Satcom International, Paris, France. It is currently operational. Satcom is a joint company consisting of British Aerospace plc, Space & Communications Division, Stevenage, Herts, England, and Matra Marconi Space, Paris, France. Additional contractors include Hughes Aircraft Co of the United States, Matra of France, Fokker of the Netherlands, Spar of Canada, NEC of Japan and MBB of Germany. The Inmarsat 3 satellite was developed by Lockheed Martin Corp, Princeton, NJ, with Matra Marconi Space providing the communications payload. The first Inmarsat 3 satellite was launched in 1996.

### **International Space Station**

The International Space Station is an orbiting crewed research and work center. Boeing Defense and Space Group, Missiles and Space Division, is the International Space Station prime contractor. Matra Marconi Space is one of numerous contractors involved in this program. Specifically, the company is working on the Columbus data management system, ATV avionics bay, and CTV study.

### **Italsat**

Italsat is a three-axis stabilized domestic telecommunications satellite that forms the space-based portion of the Italian Space Agency's Advanced Satellite Communications System. Alenia Spazio, Rome, Italy, is prime contractor for the satellite and related ground stations. Matra Marconi Space is a major subcontractor, providing attitude and orbital control systems, telecommunications equipment, and automatic satellite test equipment. Italsat F1 was launched aboard an Ariane 44L booster January 15, 1991.

### Leostar

Leostar is a series of small spacecraft for deployment to low-Earth orbit (LEO). Leostar spacecraft are designed to carry communications, science or remote sensing payloads to LEO. Matra Marconi Space, manufacturer of the large Eurostar series of commercial communications satellites, introduced the Leostar family of small spacecraft in 1996.

### Meteosat

Meteosat is a series of geosynchronous meteorological satellites. Alcatel Space is the Meteosat prime contractor, responsible for system AIT and development of mutation dampers (with Onera), and head of the COSMOS industrial consortium, which comprises DaimlerChrysler Aerospace (structure, thermal controls and solar array), ETCA (power supply and conditioning), Matra Marconi Space (AOCS, EGSE, radiometers and amplifier equipment), SAT (telemetry equipment and solar cells), Alenia Aerospazio (MSG payload), and Siemens (S/UHF transponders). The satellite is in production and operational. Meteosat-7 was launched on an Ariane 44LP expendable launch vehicle in September 1997 and is operational at 0°, with Meteosat-6 assigned as a backup. Meteosat-5 is being used for experiments at a location over the Indian Ocean. The two previous satellites in the series, Meteosat-3 and -4, were removed from geostationary orbit in November 1995. MSG-1 is scheduled for launch at the end of 2000 on an Ariane rocket, with MSG-2 and MSG-3 to follow in 2002 and 2007.

### Skylark

This is a family of one-, two-, and three-stage sounding rockets. Skylark sounding rockets are used to perform suborbital microgravity experiments. Applications include crystal growth, biotechnology and the melting of metals. Depending on payload mass, Skylark sounding rockets can provide up to 21 minutes of weightlessness. The rockets are also useful for studies in astrophysics and geophysics. More than 440 rockets have been produced to date.

### Skynet

Skynet is a military communications satellite used by the United Kingdom Ministry of Defense. The Skynet satellite communications network is designed to link UK defense forces around the world. Skynets 4A and 4B are equipped with EHF, SHF and UHF receiver payloads. Matra Marconi Space, Portsmouth, Hants, England, is the prime contractor. Fokker Space & Systems BV and TRW are jointly providing the solar panels for Skynet 4D and 4E. Skynet 4D was launched aboard a Delta II rocket in January 1998, while Skynet 4E was launched aboard an Ariane 4 in February 1999.

The Skynet 5 satellite system is scheduled to begin operations in 2005.

### SPOT

SPOT satellites are a series of remote sensing spacecraft deployed in low-Earth polar orbit. The SPOT series of satellites is proving to be quite successful, following the launch of the first SPOT in 1986. SPOT 2, the second SPOT series satellite, was launched in 1989. Both systems continue to operate and provide agricultural and crop data. SPOT 3 was launched in September 1993. SPOT 4 was launched in March 1998. A SPOT 5 spacecraft is expected to be launched in late 2001.

### Spacelab

Spacelab is a habitable orbital scientific laboratory. DASA-ERNO Raumfahrttechnik GmbH, part of DaimlerChrysler's Deutsche Aerospace (DASA), Bremen, Germany, is the prime contractor for the Spacelab program, responsible for overall system design and testing. Matra SA provided software for the Spacelab. Spacelab units have already been built, so only modifications or upgrades are required.

### Telecom 1/2

Telecom 1/2 are French domestic telecommunications satellites. Matra Marconi Space, Matra Espace, Velizy, France (prime contractor), and Alcatel Espace, Courbevoie, France (communications payload), are the prime contractors for the Telecom 2 series. Telecom 2A was launched aboard an Ariane 44L booster in December 1991, with Telecom 2B following in April 1992; both satellites are operational. Telecom 2C was launched aboard an Ariane 44L in 1995. Telecom 2D was launched in 1996.

### Unmanned Vehicle Programs

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#### BREVEL

The BREVEL is a reconnaissance drone developed by Eurodrone (Groupement d'Interet Economique), a joint venture company established in 1989 involving Matra and STN SystemTechnik Nord GmbH. Marine und Sondertechnik, Bremen, Germany, is responsible for the BREVEL development program. It is a private development effort, although it will fulfill national requirements within France and Germany. The German Ministry of Defense is supporting both the PAD and BREVEL development efforts, while the French Defense Ministry is supporting only the BREVEL program. Germany placed a production order for BREVEL in late 1998 to meet its KZO requirement. France gave its approval for full-scale development in 1992, but decided against funding production in 1996. The German Air Force's decision to cancel plans to

procure a new reconnaissance drone system will not affect the BREVEL program.

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